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ABSTRACT

Babson College (a school of business and management in Wellesley, Massachusetts) attempted to make a group of first-year students computer literate through "clustering." The same group of students were enrolled in two courses: a special section of "Composition" which stressed word processing as a composition aid and a regular section of "Introduction to Information Systems" (a course in which students learn various software packages). The composition course was structured around four sub-themes: technology and the shaping of society; gender issues; issues in education; and ethics and computers in business. Students wrote one essay on each sub-theme. Students were allowed to write on computer-related topics or to branch out to other related issues. Students were introduced to some of the legal and ethical issues brought about by computers (and were encouraged to write informally as much as possible) by using electronic mail (e-mail) as much as possible. Students developed close, friendly relationships through e-mail. As a result of taking the cluster, students believed they were introduced and sensitized to ethical, legal, and moral implications of computer use. The faculty found livelier and more informed class discussions than in non-clustered classes as well as an improvement in the quality of student papers. Students also became enthusiastic users of e-mail, unlike their fellow students who did not take the cluster courses. (RS)

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Joel Nydahl

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CLUSTERING COMPOSITION WITH COMPUTER APPLICATIONS

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Joel Nydahl

AN EXPERIMENT IN COMPUTER ETHICS:
CLUSTERING COMPOSITION WITH COMPUTER APPLICATIONS

One of the challenges facing educators in the "Information Age" is turning out computer literate students. Just as print literacy ought to signify more than simply being able to write or make meaning from combinations of letters and words, so computer literacy ought to signify more than simply being able to use hardware and software.

This presentation is an interim report on one school's attempt to make its students computer literate in the broadest sense of the term. Babson College--a school of business and management in Wellesley, MA--decided that, to be computer literate, its students should understand the ethical, moral, and legal implications of computer use and be introduced to the changing concepts of community brought about by computers--especially the use of e-mail.

I'll discuss the initial attempt to make a group of first-year students computer literate through "clustering"--that is, enrolling the same group of students in two courses, in this case, a special section of "Composition" which stressed word processing as a composition aid and a regular section of "Introduction to Information Systems" (a course in which students learn various software packages). I'll focus on what students did, read, and discussed in my composition course, how they reacted to this experiment, and what attitudinal changes they underwent.

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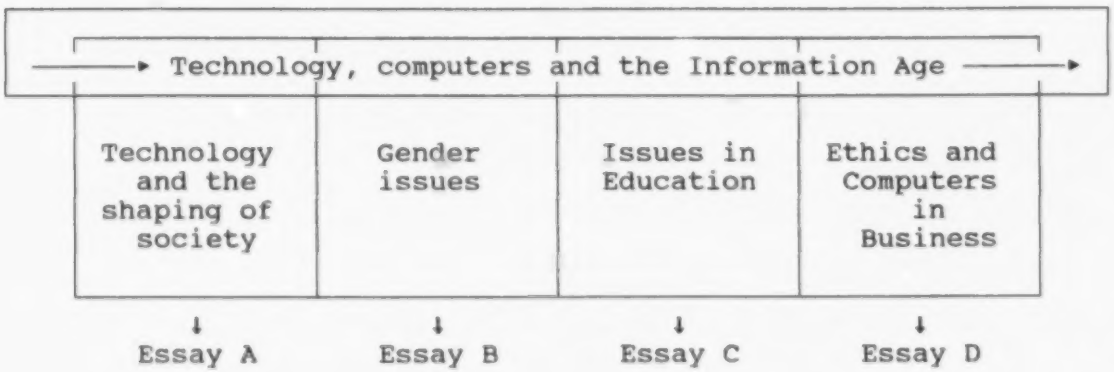
Since I hypothesized that students would grow weary of reading, thinking, and writing only about computer-related topics, I decided to broaden the scope of the course. Initially, I wanted to cast the widest possible thematic net. I wanted students to question the cultural and social movements and systems of belief that seem "natural" and, thus, "transparent" to them. As Figure 1 (which appeared on the syllabus) indicates, I chose four sub-themes which fit the general course theme:

> the ethical consequences of living in what has been called the "Age of Technology," the "Computer Age," and the "Information Age"--an age defined by a tendency for changes to take place so constantly and so quickly that we have trouble adjusting value systems before still more changes are upon us.

Figure 1



I wanted to allow students to write only on computer-related topics if they wished or to branch out to other related issues. When they wrote Essay B, for example, some wrote on women and

computers; others, however, ignored computers and investigated women in the corporate world or sexism at Babson.

In both courses over the term, students read works by Eugene Provenzo, David Bolter, Melvin Kranzberg, Theodore Roszak, Sherry Turkle, Joseph Weizenbaum, Marvin Minsky, and others. Some readings were assigned in only one course, others in both. Students always understood, however, that in either course they were responsible for readings assigned in the other. My cluster partner and I made a point of attending each other's class occasionally, referring to topics discussed in the other class, and having some writing assignments in common.

I wanted to introduce students to the social and cultural effects of various other technologies before they considered the analogous effects of computers. If a new technology tends to be thought of simply as a new version of an old technology, what are the implications if society is slow to recognize and come to terms with concomitant new ethical and social problems?

From the first day of class, I asked students to wrestle with such questions as, "How do technologies shape our value systems and behaviors?" and "How can we control, rather than be controlled by, technologies?" Selections from Provenzo's Beyond the Gutenberg Galaxy, for example, showed students the degree to which writing and the printing press changed what human beings valued, how and what they learned, and the ways in which they thought about themselves and the world around them.

In response to the assignment for Essay A, some students came up with rather insightful explorations:

William: *I thought I might write on the effects of radio on the behavior of Americans. That's too much to handle in a short essay, I know, but I thought it might be a good place to start. I'll try to narrow the topic. Maybe I could write on the effects of the radio on families. I think that listening to the radio might have changed the way members interacted with each other. I talked to my father about it over the weekend, and he said that he believed that families engaged in less conversation and that they read less. I'll go to the library tomorrow to check if this is true.*

A secondary aim of the cluster was to introduce students to the legal, moral, and social implications of their own computer use. We decided to focus on e-mail, especially its use in education (after all, Babson is a college) and the work place (all Babson students work toward degrees in business and management).

My cluster partner and I decided to use e-mail as much as possible to communicate with students. Not only did we want to introduce them to some of the legal and ethical issues brought about by computers, but we also wanted to encourage them to write informally as much as possible.

I posted messages and assignments on the VAX and required students to correspond among themselves and, as members of peer groups, to critique each others' drafts on-line.

I also used e-mail to give advice on writing; and I had my students use it to comment on model essays and carry out exercises.

The responses to my first posting gave a hint of the enthusiasm with which students took to e-mail:

Matthew: *I am pleased to inform you that I received your surprise message with much enthusiasm. I now check my mail at least twice a day. I am looking forward to class on Friday!*

One of my primary aims, in fact, was to use e-mail to establish close, friendly relationships with my students. This part of the experiment was a decided success.

Dale: *Well, it is 10:30 p.m. and I too have been having trouble in getting anything accomplished. I hope you were able to start your essay and hopefully a good night sleep will help me finish my work tomorrow. Something must be in the air tonight that's stopping us from coming up with ideas. As they say, tomorrow is another day. Hopefully, the sun will be shining in all respects.*

My belief is that the nature of e-mail discourse encouraged students to express thoughts they would have been reluctant to express otherwise--thoughts on both academic and personal matters:

Matthew: *I have many different ideas but I don't know what to say. When I try to sit down and write or think about what I want to write, my ideas become too scrambled to make sense. I've tried twice to sit down and write and both times I got so frustrated that I put it away.*

Rosemary: *I'm sorry about being behind but a lot is going on at home. If you have heard, Pan Am went out of business yesterday and my dad was laid off. I am very upset about that, and I anticipate that this weekend I will be more productive.*

Some students became intrigued with the question of how the use of e-mail altered the student-teacher relationship. Not a day went by that I wasn't sending messages or responding to questions or concerns of the students. Clearly, we had increased a certain kind of "contact." Students ended up seeking much more help than they would have if they had had to rely on visits to my office:

> **Dale:** *My industry is restaurants and I have changed my essay topic a dozen times because I cannot come up with an ethical, legal, or moral issue in restaurants dealing with computers. I was wondering if you could help me out at all?*

On the other hand, since students tended not to come to my office as much, we had less personal contact. One student, noting that he was getting more help but seeing me less, wrote:

> **Matthew:** *I seldom go to your office. Is it wrong to rely so heavily on this tool we call the VAX?*

I used this turn of events to initiate a discussion about the subtle ways in which technology changes human relationships.

But also I wanted to use e-mail to introduce students to the main issues of the course. About two weeks into the course, I posted the following message:

> *It has occurred to me that all of the readings we've done so far have an even broader theme in common: That we need to understand the forces which control our lives precisely so that we can be in control ourselves. These forces can be various technologies; but they can also be cultural/social movements or systems of belief that we simply accept as*

"natural" because, as far as we're concerned, they've always been there. And so we just accept them. Does this sound too general? We'll talk about this larger theme in class.

And, shortly afterward, I forced them to make a direct connection between the ethical use of computers and their own lives. I created a situation which directly involved them in the issue of e-mail and privacy:

As you know, I've created a distribution list for each of the four peer groups. I've done this so that you can more easily exchange messages with others in your group. You can also comment on each other's essays if you want to. QUESTION: I had the option of putting myself on each distribution list so that I can keep track of any problems you might be having. I also had the option of informing you that I was on your list. Do you think that I added my name to the distribution lists or not? If I did, do you think I should have told you? What are the arguments on both sides of these questions?

Understandably, some of their responses were naive:

Jennifer: *As our teacher and writing advisor, I feel you have a right to see our files just like in the working world if we were your employees.*

Some responses, however, were not so naive:

Cyril: *I believe you should inform us as to whether you are included on our distribution lists. . . . Someone might make a comment which you may not like or approve of. This could be avoided if everyone knew that you had access. You would also be able to read our messages without our knowing or consent. That just adds to the information system/privacy*

dispute. So, I feel that it would be in everyone's interest to know who is on the distribution lists.

Some simply didn't feel comfortable pitting what seemed wrong against what seemed useful:

Sean: *Many may think that it is unethical; on the other hand, it may be helpful to us all if you monitor our progress.*

To discover whether and how the course might alter their attitudes toward e-mail and privacy, I had students write pre- and post-course responses to the following scenario:

A supervisor scans the electronic mail files of several employees because she suspects that they are using the system for personal purposes.

Not surprisingly, the kinds and degrees of change in students' attitudes was not uniform throughout the class. By and large, however, post-course responses indicated that students saw the issue as being more complex than they had at first.

Charles, for example, wrote in September:

I firmly believe that the supervisor was wrong for scanning the electronic mail files of the employees she suspects are using the system for personal purposes.

In December, however, he wrote:

I feel that the supervisor had the right to do this given a few conditions and wrong under a different set of conditions.

Dale's views on computer privacy also changed dramatically. In September, she wrote:

> I believe that she has every right to scan the electronic mail files of the employees. . . . Some people may say that it is an invasion of privacy. But whose privacy is she invading? It is the company's system and not that of the employees.

By the time she wrote the post-course response, however, she no longer saw so clear-cut an answer:

> Possession is said to be nine-tenths of the law, but who owns a computer and all its files? . . . If a person creates a file does that give them ownership to it, or does the owner of the computer, in this case the company, have rights over your work?

The viewpoints of others appear to have been profoundly changed. Here is Albert's pre-course response in which he's more interested in the company's problems than in anything else:

> It's clear that the supervisor is violating the rights of the employees by reading their private mail. Although she is engaging in this activity I think she has strong causes that lead her to believe something is going wrong. . . . These individuals might be very dangerous to the company.

By the end of the term, however, he sees the scenario in a different light.

> The supervisor has no right to scan the employees' mail files. This is a clear violation of a person's basic right: Privacy. The employees should sue the company for looking into personal files without prior consent. . . . This is

> one of the big problems our society faces today--the invasion of computers into our private lives. Computers are very efficient tools that have helped our society; however, they have to be used in a conscientious and non-abusive way.

Some students who saw too much ambiguity in the original scenario were able to analyze complexities by the time they wrote the post-course response. Here's Jennifer at the beginning of the course:

> As the writing assignment is worded there's no background information to judge the situation by. . . . I cannot support a response without further knowledge regarding the situation.

And here's Jennifer at the end of the course:

> With the advances in technology, it's difficult for the law to keep up and, as a result, there is a lack of clear definition in e-mail policies. . . . It is unethical for a supervisor to scan the electronic mail files of several employees without clearly defining to them the company's e-mail policies.

However, if the aim of the cluster experiment was to sensitize students to the moral, ethical, and legal complexities of computer use, the experiment was only a mixed success. Some students seemed unaffected when it came to applying what they had studied. Here, for example, is Colleen at the beginning of the term:

> A supervisor scanning the electronic mail files of employees because she suspects the system is being used for personal matters does not surprise me nor does it disturb me. A work

> place is precisely that which it is called. . . . Using company equipment for personal use is incorrect behavior. . . . The supervisor has every right to do her job and protect the company.

Here's the response she gave at the end of the term:

> A supervisor has every right to scan electronic mail files of employees if she suspects that they are using the system for other than professional purposes. . . . The Electronic mail system belongs to the company and was installed for company functions. . . . Personal use of the system is in essence a form of theft of the company's assets. . . . It is an effective form of management and in all aspects a legal one.

The mixed results were apparent, also, when I looked at students' final essays. For their final project in "Introduction to Information Systems," all students had to analyze the "bottom-line" use of computers in a small company of their choice. For their final essay in "Composition," I gave them the following assignment:

> Investigate the ethical, moral, and legal issues involving computer use in the general industry represented by the company you studied for your "Introduction to Information Systems" project.

The essays of most students focused on what I would call ethics-based concerns. Here, for example, are some typical thesis sentences:

BLOCKBUSTER VIDEO TRIES TO INSURE CONSUMER PRIVACY BY IMPROVING SECURITY COMPONENTS AND COMPUTER SOFTWARE.

IN ORDER TO MEET THE PROTECTION AND PRIVACY NEEDS OF BOTH COMPANIES AND EMPLOYEE E-MAIL USERS, MANAGERS MUST DEFINE CLEAR ELECTRONIC MAIL POLICIES.

COMPANIES THAT SELL THE CUSTOMER INFORMATION TO OTHER FIRMS ARE ACTUALLY VIOLATING THEIR CUSTOMER'S PERSONAL PRIVACY.

Not surprisingly, considering once again that Babson is a school of business and management, a fair number of students stressed wholly company-based concerns. Again, here are some typical thesis sentences:

THERE ARE MANY THINGS THAT CREDIT UNIONS ARE DOING TO PROTECT THEIR COMPUTER SYSTEMS.

THE POTENTIAL MISUSE OF CLASSIFIED SECURITY CODES COULD CRIPPLE A SMALL COMPANY OVERNIGHT.

A CODE SYSTEM USED FOR SECURITY OF INFORMATION IN THIS INDUSTRY CAN LEAD TO SEVERE PROBLEMS FOR A COMPANY.

There was one unambiguous outcome from the experiment: When I asked students to anonymously comment on the fictional scenario that the Dean had proposed that this kind of cluster be made part of the Babson curriculum, students unanimously supported the proposal. They were glad that they had been part of the cluster and valued what they had studied--even those who evidenced little change of heart in the pre- and post-course responses to the prompt about employee e-mail files.

Again, not surprisingly, student responses varied between the ideal and practical--although a majority of students stressed societal and community concerns. For example, here's Sean:

> There is more to business than just business; we need to be aware of the effects that our future decisions will have on the communities we will live in.

And here's Beth--though at another point in her response she, too, discussed less bottom-line concerns:

> Students chose Babson for its well-rounded curriculum. By studying the implications of computer use, they would further place themselves above the competition from other business schools.

All in all, this experiment in clustering was a success. According to students' own statements on various evaluation instruments, they believe that they were introduced and sensitized--and rightfully so--to the ethical, moral, and legal implications of computer use. The faculty who taught the cluster found livelier and more informed class discussions than they have in previous, non-clustered classes; and they believe that students saw a relevance to course readings and discussions they would not have seen otherwise. In addition, my cluster partner reported a vast improvement in the quality of student papers. Another outcome of the experiment: Students from the cluster became enthusiastic users of e-mail. Most of the other first-year students (and most Babson students in general) seldom if

ever check their e-mail and resent it when faculty hold them responsible for postings on it.

In my typical Pollyannaish way, I'm looking forward to a new and improved version of the cluster next fall.